Permitting Water Wells 3/10/04

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Data is available in this interactive mapping application intended to provide New Jersey Well drillers, Environmental Consultants and the public at large with graphical and tabular information about the presence, extent, and type of contamination in the ground water and soils at locations where potable wells may be placed. The information used to address these issues are the Department's GIS databases comprising Institutional Controls known as Classification Exception Areas (CEAs) and Deed Notice Areas (DNAs), also included are large areas of GW contamination called “Currently Known Extent of GW contamination”(CKEs). Please go to the "data description" button for an explanation of these areas and the corresponding links to "full metadata" for any limitations and caveats associated with the data.

The Department’s intention is that the users of this application will be able to identify the aerial extent of contamination at a specific property or location expected to be used for well placement. The user will use the CEA, CKE and DNA data layers and if the spatial data is available at or near the proposed well location they will appear as closed color filled polygons representing the known aerial extent of groundwater and soil contamination in the area.

In addition I-MapNJ provides New Jersey Water Well drillers with supplemental information necessary for completion of the well permit application. Specifically included is the information necessary for the user to identify the state plane coordinates and the atlas grid coordinates of the well to be installed.

I. Instructions for Use

Outlined below are the procedures for use in I-MapNJ’s Permitting Water Wells application.

A. Finding your location using address matching functionality

1. With the map extent set to the entire (grey map) state, select the link "Find an individual location" at the right side of the page.
2. A window will popup, select to find an individual location by "Address".
3. On the next screen, type in the requested address information and select the"Next Criteria" button.
4. On the next screen select the "View Map" button.
5. A window will appear titled "i-MapNJ - Address Match Candidates" with a table "Locate Results" and a list of the sites returned from the address search criteria. The list of candidates are numbered, with the cursor select the number #

of address of the best search candidate. (If this window does not appear go to Section B below)

6. A new map extent will appear with the selected property at the center of the map window. You will note that the aerial photography, which is scale dependent, is now available for review. (Scale dependence - In order to reduce map clutter some data layers are not available for review until the user has reached a pre-selected map scale).
7. At the left side of the page the user will note two tabs: "Data Layers" and "Legend". Select "Data Layers"; note that the list of data layers available to be added to the map view has increased.
8. Select the CEA, CKE, DNA and Well Permit Grid data layers by checking the box at the far left next to each layer. At the top of the list select the "refresh map" button, and the map will redraw to include any CEAs, CKEs or DNAs in the area of interest.
9. If the user is interested in the details about the CEA, CKEs or DNAs select the radio button to the right of check box of the layer of interest to make it active. Note only one radio button can be turned on at a time. Select the "identify" tool from the toolbar located above the map. Move the cursor in the map frame over the layer that was made active, left click and a popup window will appear containing information relevant to the layer queried. (Refer to the "data description" button noted above and the link to "full metadata" for an explanation of the data elements presented).
10. If the scale of the map extent is not satisfactory, the user can zoom in further by selecting the "zoom" tool from the toolbar located above the map. To use this tool, move the cursor to the map view, press the left mouse button while pulling the cursor down and to the right over the area to be zoomed to; note the red box bracketing the area of interest. Upon release of the mouse button the map will automatically zoom to the area that was bracketed by the red box.
11. Go to Section II. below: "Actions to be taken upon identification of well placement location"

B. If the address matching functionality fails

1. Under the "Data Layers" tab on the left side of the screen, turn on the County and Municipality data layers by checking the box at the far left next to each layer. Click the "refresh map" button for these changes to take effect.
2. With the map extent set to the entire state ("full extent"), select the "zoom" tool from the toolbar located above the map. To use this tool, move the cursor to the map view, press the left mouse button while pulling the cursor down and to the right over the area to be zoomed to, note the red box bracketing the area of interest. Upon release of the mouse button the map will automatically zoom to the area that was bracketed by the red box. At this stage the user should zoom to their county of interest.
3. Locate the municipality of interest and zoom to that area using the same technique as noted above.
4. Turn on the roads data laver under the "Data Lavers" tab. The user will note

there are two road layers; the "Roads (GDT)" when turned on also automatically label roads in the map view. Occasionally, depending on the scale or the density of roads in the map extent, the labels will clutter the map. The user may adjust the map extent to reduce the label clutter effect. Use the labeled roads layer and aerial photography to locate the area of interest.

5. If the aerial photography causes confusion during this process it can be turned off. Look at the bottom of the "Data Layers" find "Aerial Photos 1995/97", check "off" the box, and click the "refresh map" button.
6. When the area of interest is located follow steps 7 through 11 above.

II. Actions to be taken upon identification of well placement location

1. If a CEA, CKE or DNA is identified in the proposed well location, the well driller and client should assess the feasibility of moving the well to an un-compromised GW area. If the well cannot be moved, it will be necessary to design the well to insure that water is drawn from a deeper clean aquifer and that the well does not cause contamination to migrate from the contaminated GW or soils area to undamaged portions of the aquifer. (See well design requirements at the end of this document - Section IV).
2. Make the Well Program Grid layer active by turning on the radio button. Select the "identify" tool from the toolbar. Move the cursor to the point on the map where the well is to be drilled, left click the mouse and a table will appear that contains the Well Permit Grid ID (atlas grid coordinate) for the well. Transcribe these coordinates to the well permit application.
3. With the aerial photography layer turned on, place the cursor as close to the proposed well location as possible; note that the state plane coordinates for the well are located in the status bar in the lower left corner of the page after the label "Map". Transcribe these coordinates to the well permit application.

III. Data limitations and cautionary considerations

1. Classification Exception Areas (CEAs) - Not all sites with groundwater contamination in the state have received CEAs. Review of the NJDEP's Known Contaminated Site list in New Jersey suggests that 10,000 + cases may have contaminated or threatened ground water. The CEA listing provided in this application addresses only 1400 of these sites. Accordingly, the fact that a CEA is not in an area proposed for well installation does not mean that the ground water in that area is clear of any contamination.
2. Currently Known Extent of groundwater contamination areas (CKEs) - NJDEP Site Remediation case management staff has determined the spatial extent for each CKE polygon. The CKE area is based on the results of groundwater sampling and analysis indicating that contamination is present in a drinking water wells in the area. The CKE polygon boundary usually will follow the property boundary lines of all the properties with contaminated wells when the properties are contiguous and the wells are within 1000 feet of each other. However, for properties larger than 3.5 acres the boundary of the CKE may be

based on the location of the contaminated well and will not encompass the entire property. In some areas contaminated wells may have been detected in proximity to an established CKE but have not been included within the boundary of the CKE because the well is outside the radius of 1000'. The Department is engaged in reassessment and investigation of the existing CKEs; it is important to note that CKEs areas are approximations of the actual aerial extent of GW contamination and the boundaries presented here may change over time as new information is developed. At this time, the records of the CKEs in this application do not include a listing of the specific groundwater contaminants. It should also be noted that CKE areas might overlap with other CKEs and CEAs. Revisions and additions will be used to update the CKE database as new information is received.

3. Deed Notice Areas (DNAs) – Not all sites with soil contamination in the state have DNAs. The DNA listing provided in this application addresses 367 of these sites. Accordingly, the fact that a DNA is not in an area proposed for well installation does not mean that the soil in that area is clear of any contamination. While the presence of a DNA does not necessarily mean that GW in association with or below the DNA is contaminated, it also does not mean that the GW is not contaminated. Most deed notices contain language and maps detailing the engineering and institutional controls that are intended and designed to prevent unacceptable exposure of contamination to humans or the environment, this language includes specific reference to land use restrictions in the institutional and engineering controls areas. Accordingly the careless installation of wells within the boundary of the IC, or through the engeneering controls have the potential to act as vertical contaminant migration pathways for contaminated soils and surface water runoff to the underlying ground water. As with CEAs and CKEs well installation in the DNA should be avoided, if a well must be installed in the area the well must be designed to insure that soil and contaminated surface water run off to the well do not occur.

IV. Conditions for approval of wells placed within set within the boundaries of the CEA, CKE and DNA

1. With the exception of monitoring wells installed into the first water bearing zone, any proposed well to be installed within the CEA ,CKE or DNA boundary must be double cased to an appropriate depth, in order to prevent any vertical contaminant migration pathways. This depth is either into a confining layer or 50 feet below the vertical extent of the CEA or CKE if known.
2. Any potable well to be installed within the footprint of the CEA, CKE or DNA shall be sampled annually for the parameters of concern. The first sample shall be collected prior to using the well. If contamination is detected, contact your local Health Department. If the contamination is above Safe Drinking Water Standards, then the NJDEP Hot Line should be called 1-877-WARNDEP. Treatment is required for any well that has contamination above the Safe Drinking Water Standards.
3. Any proposed high capacity well production wells in the immediate vicinity of

the CEA or CKE should be pre-evaluated to determine if pumping from these wells would draw a portion of the contaminant plume into the cone of capture of the production wells or alter the configuration of the contaminant plume.

Note, that the failure to take appropriate precautions during well installation within the areas of known GW contamination identified in this project, that result in contaminant migration to areas that were previously un-compromised may be determined to be a violation of the Spill Compensation and Control Act 58:10-23.11.

Any questions concerning "Permitting Water Well" should be addressed to John DeFina: john.defina@dep.state.nj.us